# *CALATHEA COFANIORUM* AND *C. SHISHICOENSIS*, NEW ENDEMIC SPECIES OF MARANTACEAE FROM ECUADOR

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ABSTRACT

**Calathea cofaniorum** H. Kenn. and **C. shishicoensis** H. Kenn., both endemic to Prov. Sucumbíos, Ecuador, are described as new species. They are most similar in aspect to the Ecuadorian species *C. neillii* H. Kenn. & *C. fredii* H. Kenn. with several basal leaves and a single cauline leaf or bladeless sheath subtending an inflorescence of bright rose-pink bracts. *Calathea cofaniorum* differs from *C. neillii* in the usually 3 vs. 7 minor veins between the major veins; the narrower angle of divergence of lateral veins from the midrib, 19°–31° vs. 40°–50°; and the red-purple vs. yellow petals and staminodes. It differs from *C. fredii* in the smooth vs. strongly corrugated leaf surface; the narrower, 2.1–4.8 vs. 5.2–10 cm, and abaxially glabrous vs. pilose leaf blades. *Calathea shishicoensis* differs from *C. neillii*, *C. fredii* and *C. cofaniorum* by its inflorescence of spirally arranged bracts and broader leaves (length:width ratios of 1.33–1.75 vs. 4.1–7.45:1).

RESUMEN

Se describe **Calathea cofaniorum** H. Kenn. and **C. shishicoensis** H. Kenn., ambas endémicas a la Provincia de Sucumbíos, Ecuador, como especies nuevas para la ciencia. Las dos especies se semejan a *C. neillii* H. Kenn. y *C. fredii* H. Kenn. de Ecuador con las cuales tienen los caracteres de hojas basales y solo una hoja caulina o una vaina sin lámina foliar que subtiende una inflorescenia con brácteas rosadas brillantes. *Calathea cofaniorum* se distingue de *C. neillii* por sus hojas con 3 vs. 7 venas minores entre las venas majores; por el ángulo de divergencia de las venas laterales del nervio medio más angosto (19°–31° vs. 40°–50°); los pétalos y los staminodios rojo-purpureos vs. amarillos. Se distingue de *C. fredii* por la lámina foliar plana vs. fuertemente plegada; más angosta, 2.1–4.8 vs. 5.2–10 cm, y finalmente, glabra vs. pilosa en la haz. *Calathea shishicoensis* se sobresale de *C. neillii*, *C. fredii* y *C. cofaniorum* por sus inflorescencias con brácteas espiraladas vs. dísticas y las hojas más anchas (la relación largo/ancho es 1.33–1.75:1 vs. 4.1–7.45:1).

Since the publication of the treatment of Marantaceae for the *Flora of Ecuador* (Kennedy et al. 1988) there has been a substantial increase in field work there. Consequently, a number of new species have been collected in the last decade, including the two being described herein. Of the total of 96 species in the 1988 flora publication, 64 were in the genus *Calathea*. Of these, 32 species were noted as endemic. As the two species described herein are known only from the types, in Ecuador, they are considered to be endemic. However, since they are somewhat near the border with Colombia it is possible they could occur there as well but are so far not documented. Currently a total of 69 species of *Calathea* are recognized for Ecuador including the two new species being described. As with the related *C. neillii* H. Kenn. and *C. fredii* H. Kenn., these new species, with their attractive bright rose-pink bracts, would be excellent garden subjects, though probably not for the lowlands. The two species described herein seem most likely to be related to either the "*C. lanicalis* Group" (Kennedy et al. 1988), which includes the red-bracted *C. timothei* H. Kenn., or *C.* section *Calathea*, which has distichous-bracted species.

## TAXONOMIC TREATMENT

**Calathea cofaniorum** H. Kenn., sp. nov. (**Fig. 1**). TYPE: ECUADOR. SUCUMBÍOS: foothills of the Andes near the Colombian border, access from Bermejo oil field road to Pozo 2, NW between Lumbaquí and Cascales, Río Bermejo to Cerro Sur Pax, Cofan community of Alto Bermejo, steep slopes N of Vista Camp, upper hill forest transition to mountain ridge, steep slopes and rock cliffs, 1300–1600 m, 00°18'13.8"N, 77°24'32"W, 29 Jul 2001, *R. Aguinda, N. Pitman & R. Foster 1415* (HOLOTYPE: QCNE; ISOTYPES: F 2231893, UCR).

*Calathea cofaniorum* a *C. neillii* foliis venis minoribus plerumque 3 (vs. 7) inter majores interpositis, lamina foliari adaxialiter glabra (vs. minute tomentosa secus venas majores), venarum angulo majore (59–71° vs. 40–50°) atque lobis corollinis necnon staminodiis rubropurpureis (vs. luteis), a *C. fredii* foliis laevibus (vs. valde corrugatis) abaxialiter glabris (vs. pilosis) differt.

**Plants** rhizomatous, caulescent, herbs, 30–55 cm; stem green, glabrous except sparsely minutely tomentose adjacent to leaf sheath; cataphylls narrowly ovate, apiculate, innermost cataphyll 5.5–13 cm. **Leaves** 4–8 basal, none or 1 cauline, a cauline leaf or bladeless sheath borne atop a 20.5–30.5 cm stem internode; leaf sheath not auriculate, green, wings glabrous along margin, sparsely minutely hispid abaxially along center and adjacent portion of wing, leaf sheaths 7.5–15.5 cm, bladeless sheath ca. 3 cm, very base of leaf sheath sericeus, the hairs pale straw-colored, 1 mm; petiole green, minutely subhispid apically, subglabrous to glabrous basally, the hairs 0.2–0.5 mm, 1.2–16.5 cm; pulvinus round in cross-section, olive-green, appressed tomentose in narrow band adaxially, the rest glabrous, the hairs 0.5–0.7 mm, articulate, noticeably thicker than petiole, 0.5–0.7 cm; leaf blade narrowly elliptic, apex acuminate-attenuate, base unequal, obtuse; 12.2–24 × 2.1–4.8 cm (length:width ratios [4.1–] 4.58–6.57:1), generally 3 minor veins between major veins, ratio of width of narrower side of leaf to wider 1: 1.30–1.41, vein angle from midrib (measured on inner 1/3 to 1/2 of blade) 19°–31°, vein spacing 0.8–1.7 mm between veins, veinlets 31–40 per 5 mm (measured at midpoint of each side of the blade), adaxial surface green, glabrous, midrib tomentose, hairs along center of midrib, the hairs tan, 0.7–1 mm, subglabrous to glabrous in apicalmost 0.5–1 cm; abaxial leaf surface grayish green, glabrous, midrib olive-green, sparsely tomentose to subglabrous along sides, center portion glabrous, the hairs tan, 0.3–0.5 mm. **Inflorescence** terminal, 1 per shoot, subtended by a cauline leaf or bladeless sheath, imbricate, subrectangular, laterally compressed, 3–5.3 × 2–2.3 cm; peduncle olive-green, apical 1 cm tomentose, subglabrous to glabrous basally, 1.9–9 cm. **Bracts** 6–12, distichous, transverse elliptic, apex retuse, apical margin straight, not recurved, 1.2–1.7 × 2–2.2 cm, each bract subtending 3 or more flower pairs, abaxial surface of bracts rose-red, glabrous, drying with veins prominent, adaxial surface rose-red, glabrous; bicarinate prophyll membranous, ovate, apex obtuse, translucent, glabrous, 1.3–1.4 × 0.6–0.8 cm, ca. 0.5 cm wide, carina to carina; secondary bract membranaceous, ovate-elliptic, apex obtuse, glabrous, ca. 1 × 0.5 cm; bracteole 1 per flower pair, membraneous, narrowly elliptic, ca. 0.9 × 0.2–0.3 cm. **Flowers** opening spontaneously. **Sepals** membranous, narrowly elliptic to narrowly obovate, obtuse to 90°, glabrous, 12–13 × 2–2.5 mm. **Corolla** tube light red-purple, glabrous, 12–14 mm; corolla lobes subequal, elliptic, apex ca. 90°, red-purple, glabrous except for few minute colorless hairs of ca. 0.1 mm at very tip, 5–5.5 × ca. 2 mm. **Staminodes** 3, red-purple; callose staminode totally callose, ca. 4 mm; cucullate staminode, 3–3.5 mm; anther ca. 2 mm, data unavailable on outer staminode due to condition of specimen. **Ovary** glabrous, 1.5–2 mm. **Capsule** obovoid, apical rim irregular, apex concave, glabrous, crowned by a persistent calyx.

*Distribution and habitat.*—*Calathea cofaniorum* is endemic to Ecuador, known only from the type locality in the Province of Sucumbíos, in the foothills of the Andes near the Colombian border, near the Cofan community of Alto Bermejo. It occurs at 1300–1600 m elevation in the upper hill forest transition to monutain ridge on steep slopes and rock cliffs. The type was collected in flower in July.

*Discussion.*—*Calathea cofaniorum*, shares the habit of several basal leaves with an inflorescence of distichous bright rose-pink bracts borne above an elongate stem internode with both *C. fredii* and *C. neillii*. *Calathea cofaniorum* differs from *C. neillii* in the usually 3 vs. 7 minor veins between the major veins, the leaf blade adaxially glabrous vs. minutely tomentose along major veins, the steeper vein angle, 19°–31° vs. 40°–50° divergence from midrib, and the red-purple vs. yellow corolla lobes and staminodes. It differs from *C. fredii* in the smooth vs. strongly corrugated leaf surface; the narrower, 2.1–4.8 vs. 5.2–10 cm, and abaxially glabrous vs. pilose leaf blades and shorter, 12–13 vs. 15–16 mm, sepals. It would key out in *Flora of Ecuador* (Kennedy 1988:47) under lead 30A because of the distichous bracts.

*Etymology.*—The specific epithet, *cofaniorum,* is in recognition of the Cofan community on whose land the plant was collected.


Fig. 1. Calathea cofaniorum H. Kenn. Isotype (*Aguinda, Pitmann & Foster 1415* F). Scan provided by Field Museum.

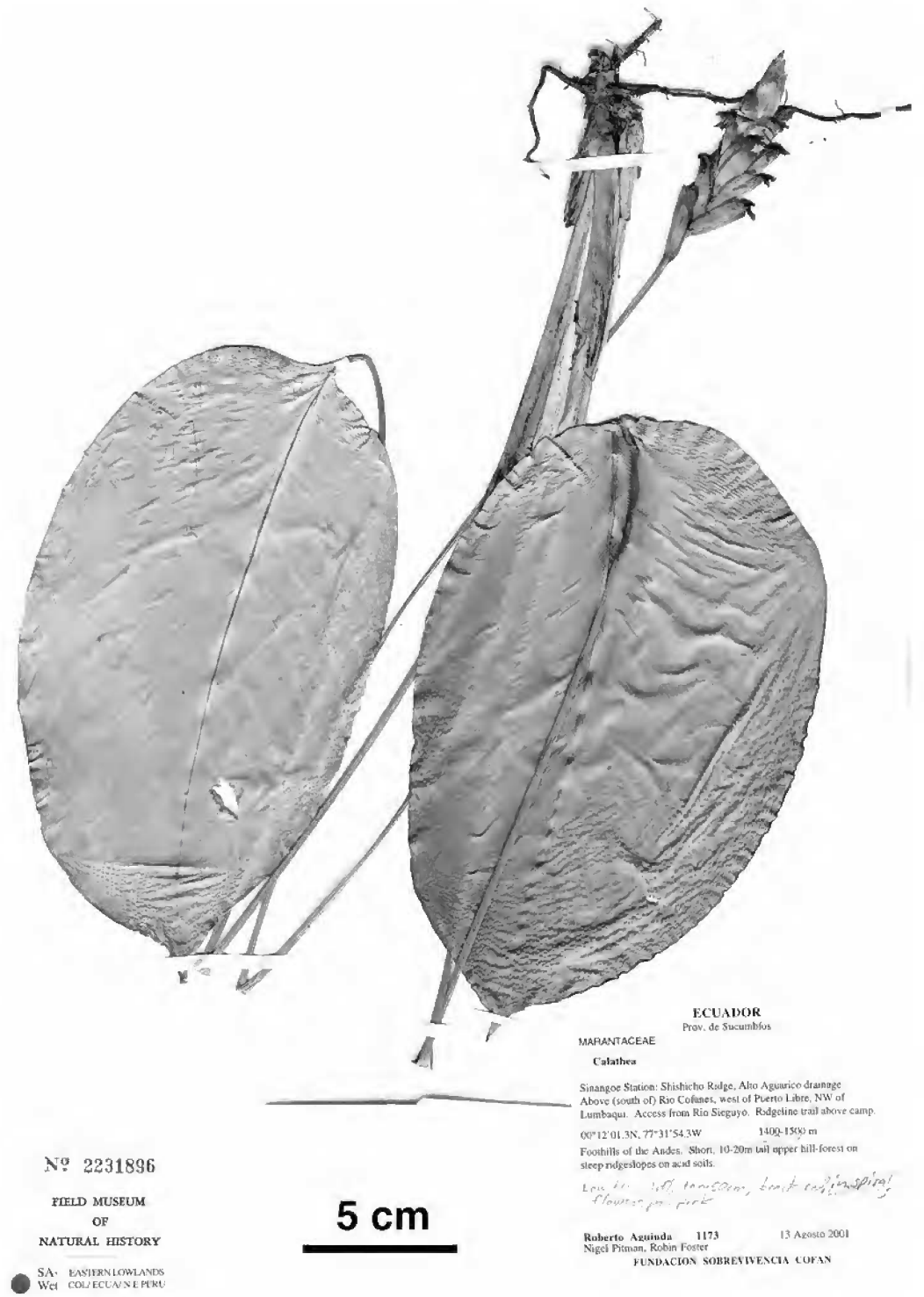


Fig. 2. *Calathea shishicoensis* H. Kenn. Isotype (*Aguinda, Pitmann & Foster 1173* F). Scan provided by Field Museum.

**Calathea shishicoensis** H. Kenn., sp. nov. (**Fig. 2**). TYPE: ECUADOR. SUCUMBÍOS: foothills of the Andes, access from Río Sieguyo, NW of Lumbaqui, W of Puerto Libre, above (S of) Río Cofanes, Alto Aguarico drainage, Shishico Ridge, Sinangoe Station, ridgeline trail above camp, short, 10–20 m tall, upper hill-forest on steep ridge slopes on acid soils, 1400–1500 m, 00°18'13.8"N, 77°24'32"W, 13 Aug 2001, *R. Aguinda, N. Pitman & R. Foster 1173* (HOLOTYPE: QCNE; ISOTYPES F 2231896, UCR).

*Calathea shishicoensis* a *C. neillii*, *C. cofaniorum* et *C. fredii* bracteis spiraliter (vs. distiche) dispositis atque foliis ellipticis (vs. anguste ovato-ellipticis vel anguste ellipticis) longitudinis cum latitudine proportione 1.33–1.75 (vs. 4.10–7.45): 1 differt.

**Plants** rhizomatous, caulescent, herbs, 50–70 cm; stem green, minutely sparsely tomentose in apical 3 cm (just below cataphyll subtending the inflorescence), glabrous basally; cataphylls narrowly ovate, apiculate, sparsely pilose in upper half, glabrous basally, innermost cataphyll 11–16.5 cm. **Leaves** 2–3 basal, a bladeless sheath borne atop a ca. 51.5–52.5 cm stem internode; leaf sheaths not auriculate, green, glabrous, 9.4–14 cm; petiole green, glabrous, 30–34.5 cm; pulvinus round in cross-section, deep olive-green with a purplish band at junction to petiole or tinged purple throughout, appressed tomentose in narrow adaxial band, the rest glabrous, hairs 0.5 mm, 3.1–4.2 cm; leaf blade coriaceous, elliptic, apex obtuse with acumen, base rounded to subtruncate, shortly abruptly attenuate, 17–21.6 × 9.8–13.1 cm, (length:width ratios 1.33–1.75:1), generally there are 7 minor veins between major veins, vein angle divergence from midrib (measured at midpoint of blade) 36°–48°, 20–30 veins per 3 cm, veinlets ca. 25 per 3 mm (measured at midpoint of each side of the blade); adaxial leaf surface deep matte green except shiny along margin, major veins darker green, glabrous except sparsely minutely (14× magnification) tomentose along major veins and on acumen, the hairs colorless, 0.2–0.3 mm, midrib yellow-green, densely tomentose throughout midrib and just onto adjacent portion of blade, the hairs colorless 0.3–0.5 mm; abaxial leaf surface semi-shiny gray-green, glabrous except sparsely minutely tomentose along major veins, glabrous toward margin and along margin in apical 0.5 cm, midrib green, appressed tomentose but only on sides in basal portion, the hairs colorless 0.5 mm. **Inflorescence** terminal, 1 per shoot, subtended by a bladeless sheath 2.5–3 cm, imbricate, fusiform, 4.8–6.5 × 2–2.2 cm; peduncle green, pink right at junction to lowest bract, sericeous, the hairs colorless 0.25–0.3 mm, ca. 1–1.1 cm. **Bracts** 11–16, spirally arranged, herbaceous, elliptic, apex rounded, dying back and splitting into 2 or 3 irregular segments, outer margin and apex thin, membranous, straight, 2–2.2 × 1.2–1.4 cm, each bract subtending 5 or more flower pairs, abaxial surface of bracts deep rose-pink, minutely pilose toward margin and very tip with tuft of hairs, the rest glabrous, the hairs 0.2–0.3 mm, hairs more evident in lower bracts; bicarinate prophyll membraneous, ovate-elliptic, apex obtuse to rounded, margin deeply pigmented, probably colored when live, the rest translucent, sparsely pilose on carina, the rest glabrous, the hairs colorless 0.3–0.5 mm, 1.6–1.7 × ca. 0.8 cm, 0.5–0.6 cm wide, carina to carina; secondary bracts absent; bracteoles 2 per flower pair, membraneous, medial, both carinate, narrowly oblong-elliptic, translucent with very margin deeply pigmented (dark red-brown when dried), glabrous, 1.3–1.5 × 0.2–0.3 cm. **Flowers** opening spontaneously, pale pink *fide* label, *Aguinda et al. 1173* (F). **Sepals** narrowly oblong-elliptic, obtuse to 90°, margins inrolled appearing acute, 14–16 × 2.5–3 mm; corolla tube glabrous, 15–17 mm; corolla lobes subequal, elliptic, apex acute, darker, purplish pink at apex, pale below, glabrous except tuft of colorless hairs at apex, the hairs ca. 0.1 mm, 7–8 × 1.5–2 mm. **Staminodes** 3; outer staminode ca. 4.5 mm; callose staminode totally callose, 6–6.5 mm; cucullate staminode 3.5–4 mm; anther ca. 1.5 mm. **Ovary** essentially smooth with a thickened, raised rim, apically, the calyx attached in a slight depression. **Capsule** and seeds unknown.

*Distribution and habitat.*—*Calathea shishicoensis* is endemic to Ecuador, known only from the type locality in the in the foothills of the Andes, Sucumbíos Province, on Shishico Ridge in the Alto Aguarico drainage. It occurs from 1400–1500 m in the short, 10–20 m tall, upper hill-forest on steep ridge slopes on acid soils. The type was collected in flower in August.

*Discussion.*—*Calathea shishicoensis* shares a similar habit and also the bright rose-pink bracts with *C. neillii*, *C. cofaniorum* and *C. fredii*, but differs significantly in having spirally arranged bracts and decidedly broader leaves (length:width ratios of 1.33–1.75 vs. 4.1–7.45:1). Like *C. neillii*, it has 7 minor veins between the major veins and also lacks secondary bracts. It would key out in *Flora of Ecuador* (Kennedy 1988:47) with *C. roseo-*

*bracteata* H. Kenn. under lead 40A because of the spirally arranged rose-pink bracts but is distinguished by the smooth vs. strongly corrugated leaf blade and fewer, 11–16 vs. 25–50, bracts.

*Etymology.*—The specific epithet, *shishicoensis,* is in reference to the Shishico Ridge from where it was collected.

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